



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/043,562	01/11/2002	Mathias Popp	10015699-1	7936

22879 7590 02/28/2005

HEWLETT PACKARD COMPANY  
P O BOX 272400, 3404 E. HARMONY ROAD  
INTELLECTUAL PROPERTY ADMINISTRATION  
FORT COLLINS, CO 80527-2400

EXAMINER

BATAILLE, PIERRE MICHE

ART UNIT PAPER NUMBER

2186

DATE MAILED: 02/28/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/043,562

Applicant(s)

POPP, MATHIAS

Examiner

Pierre-Michel Bataille

Art Unit

2186

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 June 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-34 is/are pending in the application.
- 4a) Of the above claim(s) 2,3,8,15,19 and 23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,4-6,11,18,20-22 and 24-34 is/are rejected.
- 7) ☒ Claim(s) 7,9,10,12,13,16 and 17 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. This Office Action is taken in response to applicant communication filed December 28, 2004 responding to the Final Office Rejection dated August 31, 2004. Applicant's amendment and/or arguments have been considered with the results that follow.
2. Claims 1, 4-7, 9-14, 16-18, 20-22, and 24-34 are now pending in the application under prosecution, as claims 2-3, 8, 15, 19, and 23 have been cancelled by the amendment.
3. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. The following remarks are noted:

The second occurrence of the article "the" should be deleted in the clause "actionable memory whether the - the at least one storage unit pair" of claim 1.

Claim 14 is dependent upon canceled claim 2. It appears that the claims should depend upon 12. The claim is therefore, not being considered.

Please note that these are merely exemplary. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

**Response to Arguments**

4. Applicant's arguments with respect to claims 1, 4-7, 9-14, 16-18, 20-22, and 24-34 have been considered but are moot in view of the new ground(s) of rejection.

**Claim Rejections - 35 USC § 102**

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1, 4-6, 11, 18, 20-22, and 24-34 are rejected under 35 U.S.C. 102(b) as being anticipated by US 2004/0073831 (Yanai et al).

With respect to claims 1, Yanai suggests a method for monitoring mirroring conditions of at least one of a pair of storage units **[(remote data mirroring system having at least a primary storage and a secondary data storage system) Fig. 1, Par. 0011, 0012]** comprising: providing a machine-actionable memory having one or more machine-actionable records arranged according to a data structure, the data structure including at least one status field the contents of which are indicative of the status of a mirroring process of the at least one storage unit pair, respectively **[(status**

***information regarding logical volumes configured for remote mirroring) Par. 0311-0324]; requesting status information relating to the at least one storage unit pair from mirroring software associated therewith [(service processor and host remote mirroring software responds to commands for requesting remote mirroring status) par. 0309]; receiving the requested status information [(data storage system reports the following environmental error messages at the service processor user interface, and to the host and the customer service center) Par. 0287-0308]; automatically updating the at least one status field of the machine-actionable memory based upon the requested status information; and automatically determining from the updated at least one status field of the machine-actionable memory whether the at least one storage unit pair is in a suspended condition [(remote mirroring software for permitting a system operator or host application program to monitor and control remote mirroring, the remote mirroring software providing the capability of changing the configuration of the remotely mirrored volumes in the data processing system, suspending and resuming remote mirroring) Par. 0329-0347].***

With respect to claims 18, 22, 31-32, Yanai discloses, similar to the features of claim 1, A system for monitoring mirroring conditions of at least one pair of storage units, comprising: a mirroring software system, adapted to automatically obtain status information on mirroring conditions of the at least one pair of storage units; and an apparatus, adapted to automatically monitor mirroring conditions of the at least one pair of storage units in conjunction with the mirroring software system ***[(remote data***

***mirroring system having at least a primary storage and a secondary data storage system) Fig. 1, Par. 0011, 0012]***, the apparatus including:

a database, adapted to store monitoring information for the storage unit pair and arranged at least in part according to a data structure, the data structure including at least one status field the contents of which are indicative of the status of a mirroring process of at least one storage unit pair, respectively ***[(status information regarding logical volumes configured for remote mirroring) Par. 0311-0324]***; and

a control unit, operatively connected to the database and mirroring software for the pair of storage units, adapted to:

request status information relating to the at least one storage unit pair from the mirroring software system ***[(service processor and host remote mirroring software responds to commands for requesting remote mirroring status) par. 0309]***;

receive the requested status information ***[(data storage system reports the following environmental error messages at the service processor user interface, and to the host and the customer service center) Par. 0287-0308]***;

automatically update the at least one status field of the data structure based upon the requested status information and to automatically determine the status of a mirroring process between units of the at least one storage unit pair ***[(remote mirroring software for permitting a system operator or host application program to monitor and control remote mirroring, the remote mirroring software providing the capability of changing the configuration of***

***the remotely mirrored volumes in the data processing system, suspending and resuming remote mirroring) Par. 0329-0347]..***

With respect to claims 4, 24, Yanai discloses resynchronizing, in conjunction with the mirroring software, the mirroring process between units of the storage unit pair, upon determining that the mirroring process between units of the storage unit pair has been suspended [Par. 0351, 0030].

With respect to claims 5, 25, Yanai discloses resynchronization occurs only upon determining that automatic resynchronization of the storage unit pair has been enabled [Par. 0330-0346; 0085].

With respect to claim 6, 20, 26 Yanai discloses the data structure further includes a field representing an auto recover flag, indicating whether or not automatic resynchronization has been enabled [Par. 0330-0346].

With respect to claim 21 and 27, Yanai discloses the data structure further including at least one field representing at least one of information identifying the storage unit pair, information identifying associated mirroring software, and information identifying a monitor interval, respectively [Par. 0283, 0310-0321].

Art Unit: 2186

With respect to claim 28, Yanai discloses wherein the database includes instances of the data structure for a plurality of storage unit pairs, respectively, and wherein status information for each storage unit pair is requested, and mirroring conditions of each storage unit pair are monitored [Par. 0283, 0310-0321].

With respect to claims 29-30, Yanai discloses an interface, operatively connected to the database, for adding monitoring information for additional pairs of storage units and for varying stored monitoring information [Par. 0348].

### ***Allowable Subject Matter***

7. Claims 7, 9-10, 12-13, 16-17 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Conclusion***

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 2003/0145168 (LeCrone et al) teaching method and apparatus for maintaining data consistency.

US 2003/0126107 (Yamagami) teaching method and apparatus for backup and restoring systems.




US 6,594,745 (Grover) teaching Mirroring agent accessible to remote host computers and accessing remote data-storage devices, via communications medium.

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pierre-Michel Bataille whose telephone number is (571) 272-4178. The examiner can normally be reached on Mon-Fri (9:30A to 6:00P).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew M. Kim can be reached on (571) 272-4182. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
Pierre-Michel Bataille  
Primary Examiner  
Art Unit 2186

February 16, 2005

**PIERRE BATAILLE**  
**PRIMARY EXAMINER**